

What is claimed is:

1. A data transferring apparatus comprising:

a ring bus which circularly transfers data by holding in a slot to one direction; and

a plurality of nodes which are connected to said
5 ring bus,

wherein each of said plurality of nodes includes:

a detector which detects whether or not data destined for a self-node is held in a slot arrived to
10 another node connected to an upstream side of the self-node; and

a controller which captures the data destined for the self-node from said slot when said detector detects presence of the data destined for the self-
15 node and said slot arrives to the self-node.

2. The data transferring apparatus according to claim 1, wherein said controller, when not maintaining write data to be transferred, invalidates said arrived slot after capturing the data destined for the self-
5 node.

3. The data transferring apparatus according to claim 1, wherein said controller, when not maintaining write data to be transferred, invalidates said arrived slot after capturing the data destined for the self-

5 node, and

wherein said controller, when maintaining the write data, sends out the write data to said ring bus to transfer the write data by holding in said arrived slot after capturing the data destined for the self-
10 node.

4. The data transferring apparatus according to claims 3, wherein said detector includes:

an ID line which circularly transfers an ID signal indicative of a destination of the write data
5 in synchronization with the transfer of the write data; and

a valid line which circularly transfers a valid signal indicative of presence of the write data on said ring bus in synchronization with the transfer of
10 the write data, and

wherein when the ID signal arrived to said other node indicates the self-node as the destination and the valid signal arrived to said other node indicates presence of the write data, said detector detects
15 presence of the write data destined for the self-node.

5. The data transferring apparatus according to claim 4, wherein said controller, when maintaining the write data to be transferred to a downstream node on an adjacent downstream side of the self-node, directly

5 sends out the valid signal and the ID signal to said downstream node.

6. The data transferring apparatus according to claims 3, wherein said detector includes:

a valid line assigned for the self-node, wherein a valid signal indicative of presence of the write
5 data on said ring bus is circularly transferred on said valid line in synchronization with the transfer of the write data, and

wherein when the valid signal arrived to said other node indicates presence of the write data, said
10 detector detects presence of the write data destined for the self-node.

7. The data transferring apparatus according to claim 6, wherein said controller, when maintaining the write data to be transferred to an downstream node on a adjacent downstream side of the self-node, directly
5 send out the valid signal to the downstream node.

8. A data transferring method comprising:

providing a plurality of nodes connected to a ring bus which circularly transfers data by holding in a slot to one direction;

5 detecting whether or not data destined for a self-node is held in a slot arrived to another node

connected to an upstream side of the self-node; and

capturing the data destined for the self-node
from said slot when presence of the data destined for
10 the self-node is detected in said detecting step and
said slot arrives to the self-node.

9. The data transferring method according to claim
8, wherein said capturing step, when write data to be
transferred is not maintained, invalidates said
arrived slot after capturing the data destined for the
5 self-node.

10. The data transferring method according to claim
8, wherein said capturing step, when write data to be
transferred is not maintained, invalidates said
arrived slot after capturing the data destined for the
5 self-node, and

wherein said capturing step, when the write data
is maintained, sends out the write data to said ring
bus to transfer the write data by holding in said
arrived slot after capturing the data destined for the
10 self-node.

11. The data transferring method according to claim
10, wherein said detecting step includes:

circularly transferring an ID signal indicative
of a destination of the write data in synchronization

5 with the transfer of the write data; and

circularly transferring a valid signal
indicative of presence of the write data on said ring
bus in synchronization with the transfer of the write
data, and

10 wherein when the ID signal arrived to said other
node indicates the self-node as the destination and
the valid signal arrived to said other node indicates
presence of the write data, said detecting step
detects presence of the write data destined for the
15 self-node.

12. The data transferring method according to claim
11, wherein said capturing step, when the write data
to be transferred to a downstream node on an adjacent
downstream side of the self-node is maintained,
5 directly sends out the valid signal and the ID signal
to said downstream node.

13. The data transferring method according to claim
10, wherein said detecting step includes:

assigning a valid signal for the self-node,
circularly transferring the valid signal
5 indicative of presence of the write data on said ring
bus in synchronization with the transfer of the write
data, and

wherein when the valid signal arrived to said

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